

**Biological and Conference Opinions
for the
Columbia River Channel Improvements Project**

INTRODUCTION

This document transmits the U.S. Fish and Wildlife Service's (Service) biological and conference opinions (Service opinions), based on our review of the U.S. Army Corps of Engineers (Corps) proposed Columbia River Channel Improvements Project (Project), located in and along river miles (RM) 3-106.5 of the Columbia River, Oregon and Washington. These Service opinions address the Project's effects on proposed Southwestern Washington/Columbia River distinct population segment (DPS) of coastal cutthroat trout (*Oncorhynchus clarki clarki* - hereafter referred to as coastal cutthroat trout) and Columbia River DPS of bull trout (*Salvelinus confluentus* - hereafter referred to as bull trout), in accordance with section 7 of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Critical habitat has not been proposed for coastal cutthroat trout or designated for Columbia River bull trout.

These Service opinions also incorporate the Service's December 6, 1999, Project biological opinion (terrestrial species opinion) for bald eagle (*Haliaeetus leucocephalus*) and Columbian white-tailed deer (*Odocoileus virginianus leucurus*). New information on Project Ecosystem Restoration actions and associated effects to bald eagle and Columbian white-tailed deer is updated in these Service opinions. An updated Incidental Take Statement for bald eagle and Columbian white-tailed deer also is provided, which supercedes the terrestrial species opinion's Incidental Take Statement.

Your January 3, 2002, request for formal consultation, and the December 28, 2001, Project biological assessment was received by the Service on January 3, 2002. Your April 22, 2002, biological assessment addendum was transmitted to the Service on April 22, 2002. These Corps documents are herein termed the aquatic species BA.

The aquatic species BA discusses baseline features that are periodically maintained by the Corps, as well as identifying future activities that will need future conference and/or consultation. These features include pile dikes or other river training features; future federal actions include maintenance dredging of 12 side channels below Bonneville Dam. These features and future federal actions are not part of the proposed action and therefore are not analyzed in this conference and consultation. All these future federal activities will require site-specific conference and/or consultation with the Service.

These Service opinions are based on information provided from many sources, including a number of collaborative efforts aimed at reaching a comprehensive understanding of the best available science, the appropriate conservation measures, and the effects of the proposed actions.

These collaborative efforts are described in more detail in the Consultation and Conference History section, below. Specific information sources for these Service opinions include the aquatic species BA, the Service's December 6, 1999, terrestrial species opinion (file number 8330.2804[99]), the Service's June 8, 1999, Fish and Wildlife Coordination Act (FWCA) report (file number 7363.004 [99]), the Sustainable Ecosystem Institute's (SEI) Scientific Review Panel process, numerical and conceptual model outputs, Biological Review Team (BRT) deliberative process, numerous interagency meetings, and other sources of information. A complete administrative record of this consultation and conference is on file in the Service's Oregon Fish and Wildlife Office, Portland, Oregon.

1.0 CONSULTATION AND CONFERENCE HISTORY

The Corps' January 3, 2002, aquatic species BA represents the second Project consultation and conference process that has been reviewed by the Service. During the first Project consultation and conference, the Service only addressed listed terrestrial species, whereas the National Marine Fisheries Service (NMFS) addressed all proposed and listed aquatic species. The first consultation and conference process was completed by NMFS and the Service in December, 1999. The second consultation and conference process specifically addresses Project effects on listed and proposed aquatic species, with additional assessment of the Project ecosystem restoration action effects on bald eagle and Columbian white-tailed deer. The following paragraphs explain and/or reference the history for the Project's two consultation and conference processes.

1.1 1999 Terrestrial Species Consultation

The Consultation History section (pages 1-3) of the Service's terrestrial species biological opinion explains the Service's interactions with the Corps, and is incorporated herein by reference. Bull trout, although listed by the Service as a threatened species, was not addressed in the Service's terrestrial species opinion. The Corps made Project effects determinations for the Service's listed terrestrial species (Table 1). NMFS was also conferencing and consulting during 1999 on Project effects to 13 listed or proposed anadromous salmonid species, including coastal cutthroat trout. On November 26, 1999, the Service and NMFS (the Services) notified the Corps that the Service would assume sole regulatory jurisdiction for coastal cutthroat trout under the

Act. On August 25, 2000, NMFS withdrew their 1999 Project biological and conference opinions for all proposed and listed aquatic species. However, the Service's terrestrial species biological opinion was not withdrawn and remains in effect, except as amended herein.

During the 1999 interagency coordination and consultation process, the Service provided Project recommendations under the June 8, 1999, FWCA report. Many of those recommendations are now integrated into the Project's proposed action, as described in the aquatic species BA.

Table 1. Species evaluated and the Corps' effects determinations in the 1999 and 2002 biological assessments

Common Name	Species Name	Effects Determination	Analysis Documentation
Coastal cutthroat trout	<i>Oncorhynchus clarki clarki</i>	May affect, likely to adversely affect	2002 Conference Opinion
Bull trout	<i>Salvelinus confluentus</i>	May affect, likely to adversely affect	2002 Biological Opinion
Bald eagle	<i>Haliaeetus leucocephalus</i>	May affect, likely to adversely affect	2002 Biological Opinion; 1999 terrestrial species opinion
Columbian white-tailed deer	<i>Odocoileus virginianus leucurus</i>	May affect, likely to adversely affect	2002 Biological Opinion; 1999 terrestrial species opinion
Peregrine falcon	<i>Falco peregrinus</i>	May affect, not likely to adversely affect	Concurrence in 1999 terrestrial species opinion ¹
Aleutian Canada goose	<i>Branta canadensis leucopareia</i>	No effect	Not Analyzed Further
Brown pelican	<i>Pelecanus occidentalis</i>	No effect	Not Analyzed Further
Marbled murrelet	<i>Brachyramphus marmoratus</i>	No effect	Not Analyzed Further
Western snowy plover	<i>Charadrius alexandrinus nivosus</i>	No effect	Not Analyzed Further
Oregon silverspot butterfly	<i>Speyeria zerene hippolyta</i>	No effect	Not Analyzed Further
Bradshaw's lomatium	<i>Lomatium bradshawii</i>	No effect	Not Analyzed Further
Golden paintbrush	<i>Castilleja levisecta</i>	No effect	Not Analyzed Further
Nelson's checkermallow	<i>Sidalcea nelsoniana</i>	No effect	Not Analyzed Further
Water howellia	<i>Howellia aquatilis</i>	No effect	Not Analyzed Further

¹ Peregrine falcon were delisted on August 25, 1999 (64 FR 46541).

1.2 2001-2002 Aquatic Species Conference and Consultation

On December 7, 2000, the Service, based on our new regulatory jurisdiction for coastal cutthroat trout, recommended that the Corps initiate a conferencing process for Project effects to coastal cutthroat trout, and also informed the Corps about historic records of bull trout in the lower Columbia River (file number 8330.0563[01]). In March, 2001, informal consultation was initiated between the Service, NMFS, Corps, and Ports. On July 11, 2001, the Corps designated the six lower Columbia River Ports as non-Federal representatives for purpose of conference and consultation. On January 3, 2002, the Corps transmitted an aquatic species BA that addresses all NMFS' listed species, as well as the Service's coastal cutthroat trout and bull trout (Table 1), with minor additional analysis of Project effects to bald eagle and Columbian white-tailed deer.

A history of specific informal consultation and conference activities under the Act, between the August 25, 2000, NMFS' withdrawal of their 1999 biological opinion to current date, is presented on pages 1-11 to 1-15, and 7-1 of the aquatic species BA, and is incorporated herein by reference. The reinitiation of conference and consultation resulted in a re-evaluation of aquatic species issues via an independent, scientific, peer-review panel and a series of five public workshops; additional analysis by a multi-agency biological review team; and development and use of new analytical tools including two numerical models and an ecosystem-based conceptual model. During the reinitiation process, the Corps, NMFS, the Service, and Ports participated in a mutual analysis of Project effects, and subsequently negotiated Project modifications to minimize or avoid potential Project effects. To provide further assurances that the Project was successful in minimizing or avoiding adverse effects to proposed and listed species, Project monitoring activities and adaptive management requirements were developed and incorporated into the Corps' proposed action. Finally, during this deliberative process, the Services recommended numerous ecosystem research and restoration activities to help fulfill the Corps' responsibilities under section 7(a)(1) of the Act.

BIOLOGICAL AND CONFERENCE OPINIONS

2.0 DESCRIPTION OF THE PROPOSED ACTION

2.1 Introduction

Subsequent to NMFS' August 25, 2000, withdrawal of its December 1999 Opinion, the Corps, sponsoring Ports, NMFS, and the Service developed a "reinitiation" framework to address NMFS' major concerns and to re-define, as necessary, the Project's proposed action. Several steps were involved in the development of the current proposed action, including a re-evaluation of potential Project effects, an analysis of these potential effects within the framework of an ecosystem-based conceptual ecosystem model, and the development of compliance measures and monitoring conditions based on the effects analyses. As part of the reinitiation process, the Corps, NMFS, the Service and the Ports identified additional monitoring, research, and adaptive management components of the proposed action. The Corps, Service, and the Ports also identified additional ecosystem restoration features to be included in the proposed action for the Project. The Corps' aquatic species BA fully describes this reinitiation process, and those descriptions are incorporated herein by reference. The following is a brief overview of the steps that led to the current Project's proposed action.

To facilitate discussion of the scientific questions raised by NMFS in their August 25, 2000, withdrawal letter, the Corps, NMFS, Service, and the Ports retained Sustainable Ecosystems Institute (SEI), a public-benefit, science mediation group. Using a panel of seven nationally-prominent technical experts, SEI provided an independent, scientific process to evaluate the potential environmental issues surrounding improvement of the navigation channel. A series of SEI workshops helped frame major concerns raised in connection with the proposed Project, and identify best available science for additional analysis of Project effects.

Beginning in early spring 2001, the Corps, NMFS, Service, and the Ports formed a technical group called the Biological Review Team (BRT). The BRT engaged in regular meetings to further review and address technical issues associated with the proposed Project and its potential effects. These BRT technical meetings were occurring during and after the SEI workshops, and incorporated the SEI workshop proceedings.

During the SEI workshop process, a conceptual ecosystem model was designed to provide an integrated description of the major ecosystem links that affect ecosystem structure and/or function as related to juvenile salmonid production and ocean entry (see Chapter 5 of the aquatic species BA). The specific objectives of the model were to:

- Provide an ecosystem-level scientific framework for evaluating the Project;
- Identify links among physical-chemical and biological indicators;

- Aid in the identification of ecosystem-based processes that link salmonids and potential effects of the Project; and
- Develop a systematic methodology to evaluate monitoring and adaptive management opportunities.

The conceptual ecosystem model describes the physical and biological interactions of the lower Columbia River (from Bonneville Dam downstream to the upper end of the estuary at RM 40), estuary (RM 40 to RM 3), and river mouth (RM 3 to the deep water disposal site) in a manner that, when they are properly functioning, help to characterize a properly functioning ecosystem. The conceptual ecosystem model was used by the BRT as an analytical tool for Project effects analyses. The Corps also conducted additional numerical modeling of hydraulic parameters (i.e., salinity, velocity, depth, and temperature) for the Lower Columbia River, estuary, and river mouth. Modeling analysis was done by both the Oregon Health and Science University/Oregon Graduate Institute (OHSU/OGI) and the Corps' Waterways Experiment Station (WES). The OHSU/OGI modeling was conducted to verify the previous conclusion of the WES modeling from the Corps' 1999 Final Environmental Impact Statement (FEIS; Corps 1999) and provide additional analyses on potential Project effects to habitat opportunity for juvenile salmonids (Bottom et al. 2001).

Ultimately, the Corps, NMFS, Service, and Ports reviewed each aspect of the original 1999 proposed action, and, using the best available science, including the SEI workshops, the numeric and conceptual models, and the BRT meetings, agreed upon the current proposed action for dredging and disposal activities. The BRT identified additional compliance measures and monitoring conditions in order to minimize or avoid Project effects. Finally, the BRT proposed an adaptive management process to review information from the compliance and monitoring activities and make necessary Project modifications to minimize and avoid impacts.

2.2 Proposed Action

The proposed action consists of several components that have been developed over the course of this consultation and conference. They include:

- The construction of the deeper navigation channel, employing a range of best management practices to avoid or minimize harm to species proposed and listed under the Act;
- Maintenance dredging to maintain navigation depths for the navigation channel and other associated features;